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Indian Standard
SPECIFICATION FOR
COTTON TAPES FOR SLIDE FASTENERS

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SPECIFICATION FOR COTTON TAPES FOR SLIDE FASTENERS

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Indian Standard

SPECIFICATION FOR COTTON TAPES FOR SLIDE FASTENERS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 25 September 1978, after the draft finalized by the Narrow Fabrics, Webbing and Braids Sectional Committee had been approved by the Textile Division Council.

0.2 The cotton tapes covered by this standard are intended to be used in the manufacture of metallic slide fasteners conforming to IS : 3148-1978* and nylon slide fasteners conforming to IS : 4829-1968†.

0.3 Most of the manufacturers of metallic and nylon slide fasteners (zips) have been relying on imported cotton tapes. Since requirements of this standard are based on the test results obtained on the samples of cotton tapes supplied by the manufacturers of slide fasteners, the formulation of this standard is an attempt towards import substitution.

0.4 To familiarize the industry with International System of Units (SI Units), the basic SI Units as well as the recommended SI Units for use in the textile industry are given in Appendix A.

0.4.1 Standards of Weights and Measures Act, 1976 also stipulates use of SI units.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960‡. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers cotton tapes of width 11, 13 and 14 mm for use in the manufacture of slide fasteners.

*Specification for metallic slide fasteners (*first revision*).

†Specification for nylon slide fasteners.

‡Rules for rounding off numerical values (*revised*).

2. MATERIAL

2.1 Yarn — Unsized 2-ply cotton yarn with uniform twist and free from defects shall be used in the manufacture of cotton tape.

NOTE — Single yarns of 20 tex (30s) or 30 tex (20s) conforming to IS : 171-1973* may be found suitable. The cotton tapes, shall, however, not be rejected merely on account of yarn counts.

3. WEAVE

3.1 The cotton tapes shall be woven in a combination of 2/2 broken twill (herring bone) weave and mat weave (plain weave, 2 picks working as one).

4. WORKMANSHIP

4.1 The finished tape should be clean, even and well woven with firm, regular and straight selvages. The tape should be free from cuts, holes, tears, loose threads and other fabric imperfections and also from oil and other stains. The tape shall be with or without bead (or cord) as specified in the contract or order. In the case of tapes with bead (cord) the bead which is woven integrally or the cord which is securely sewn shall run along one edge of the tape. The tape shall be continuous, without splices and without missing selvages.

5. PHYSICAL REQUIREMENTS

5.1 The cotton tapes conforming to this standard shall meet the physical requirements given in Table 1.

6. CHEMICAL REQUIREMENTS

6.1 The cotton tapes shall meet the chemical requirements given in Table 2.

7. PACKING AND MARKING

7.1 Packaging — The tapes shall be packed in rolls in such a way that the edges are not folded over. The rolls shall be individually wrapped in kraft paper.

7.2 Marking — Each roll of tape shall be legibly marked with the following information:

- a) Name of the material and whether moisture-proof;
- b) Width and thickness of tape (mm);
- c) Length of roll (m); and
- d) Name of the manufacturer, initials or trade-mark, if any.

*Specification for grey cotton yarns (*second revision*).

TABLE 1 PHYSICAL REQUIREMENTS OF COTTON TAPES

(Clause 5.1)

SL No.	CHARACTERISTIC	REQUIREMENT			METHOD OF TEST, REF TO
(1)	(2)	(3)			(4)
i)	Nominal width, mm (see Note)	11	13	14	IS : 1954-1969*
ii)	Length, m (see Note)	100	unless specified	otherwise	
iii)	Thickness, <i>Max</i> , mm	0.45	0.50	0.45	IS : 7702-1975† IS : 1963-1969‡
iv)	Ends in full width	36 ± 2	44 ± 2	48 ± 2	
v)	Picks/cm	26 ± 1	20 ± 1	26 ± 1	
vi)	Mass, <i>Max</i> , g/m	3.0	4.0	5.0	IS : 1964-1970§
vii)	Wetway breaking load, <i>Min</i> , N(kgf)	343(35)	245(25)	343(35)	Appendix B of this standard
viii)	Water absorption (if declared moisture- proof)	40 percent,	<i>Max</i>		Appendix A of IS : 6488-1975

NOTE — Width shall be determined to the nearest 0.5 mm and length to the nearest metre.

*Methods for determination of length and width of fabrics (*first revision*).

†Methods for determination of thickness of woven and knitted fabrics.

‡Methods for determination of threads per decimetre in woven fabrics (*first revision*).

§Methods for determination of weight per square metre and weight per linear metre of fabrics (*first revision*).

||Specification for cotton webbing for personal web equipment (*first revision*).

7.2.1 Each roll of tape may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

TABLE 2 CHEMICAL REQUIREMENTS OF COTTON TAPES

(Clause 6.1)

Sl. No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST, REF TO
(1)	(2)	(3)	(4)
i)	Rot proofness (if specified in the contract or order) as zinc content	0.8 to 1.2 percent	IS : 3522 (Part II)-1970*
ii)	Colour fastness to:		
	a) Artificial light	5 or better	IS : 2454-1967†
	b) Sea water		IS : 690-1956‡
	c) Washing test No. 4		IS : 765-1966§
	d) Organic solvents		IS : 688-1956
*Methods for estimation of common preservatives used in textile industry, Part II.			
†Method for determination of colour fastness of textile materials to artificial light (xenon lamp).			
‡Method for determination of colour fastness of textile materials to sea water.			
§Method for determination of colour fastness of textile materials to washing: test 4 (revised).			
Method for determination of colour fastness of textile materials to organic solvents.			

7.3 Packing — An agreed number of such rolls shall be packed in wooden packing cases previously lined with a layer of waterproof packing material such as waterproof paper or polyethylene film.

8. SAMPLING

8.1 The lot shall consist of all the cotton tape rolls of same nominal width and delivered against same despatch note.

8.2 Unless otherwise specified in the contract or order the following sampling plan may be used for inspecting and testing the cotton tapes against this standard:

Lot Size	Sample Size (for Length, Width Thick- ness, Ends and Picks)	Permissible No. of Defectives	Sub-sample Size (for Mass, Break- ing Strength, Absorption, Rot Proofness and Colour Fastness)
100 and below	8	0	3
101 to 300	13	1 (see Note 1)	4
301 to 500	20	1	5
501 to 1 000	32	2	7
1 001 and above	50	3	10

(see
Notes 2
and 3)

NOTE 1 — In the case of length, the value obtained for the length of each roll shall be compared with its specified, declared or marked length. The mean percentage of deficiency in length, if any, shall be determined and made applicable to the lot.

NOTE 2 — In respect of mass, breaking strength, water absorption and rot proofness Mean ± 0.4 Range shall not outpass specified values.

NOTE 3 — In respect of colour fastness, no failure shall be permissible.

APPENDIX A

(Clause 0.4)

SI UNITS

TABLE 2 INTERNATIONAL SYSTEM OF UNITS

Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	CONVERSION
Force	newton	N	1 N = 0.101 972 kgf
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m ²
Frequency	hertz	Hz	1 Hz = 1 c/s (s ⁻¹)
Electric conductance	siemens	S	1 S = 1 A/V
Pressure, stress	pascal	Pa	1 Pa = 1 N/m ²

TABLE 4 RECOMMENDED SI UNITS FOR TEXTILES

Sl. No.	CHARACTERISTIC	SI UNITS		APPLICATION
		Unit	Abbreviation	
(1)	(2)	(3)	(4)	(5)
1.	Length	Millimetre	mm	Fibre
		Millimetre, centimetre	mm, cm	Samples and test specimens (as appropriate)
		Metre	m	Yarns, ropes and cordages, fabrics
2.	Width	Millimetre	mm	Narrow fabrics
		Centimetre	cm	Other fabrics
		Millimetre, centimetre	mm, cm	Samples and test specimens (as appropriate)
		Centimetre, metre	cm, m	Carpets, druggets, <i>DURRIES</i> (as appropriate)
3.	Thickness	Micrometre (micron)	μ m	Delicate fabrics
		Millimetre	mm	Other fabrics, carpets, felts
4.	Linear density	Tex	tex	Yarns
		Millitex	mtex	Fibres
		Decitex	dtex	Filament and filament yarns
		Kilotex	ktex	Slivers, ropes and cordages
5.	Diameter	Micrometre (micron)	μ m	Fibres
		Millimetre	mm	Yarns, ropes, cordages
6.	Circumference	Millimetre	mm	Ropes, cordages
7.	Threads in cloth:			Woven fabrics (as appropriate)
	a) Length	Number per centimetre	ends/cm	
		Number per decimetre	ends/dm	
	b) Width	Number per centimetre	picks/cm	
		Number per decimetre	picks/dm	
8.	Warp threads in loom	Number per centimetre	ends/cm	Reeds
9.	Stitches in knitted cloth:			Knitted fabrics (as appropriate)
	a) Length	Courses per centimetre	courses/cm	
		Courses per decimetre	courses/dm	
	b) Width	Wales per centimetre	wales/cm	
		Wales per decimetre	wales/dm	

(Continued)

TABLE 4 RECOMMENDED SI UNITS FOR TEXTILES — *Contd*

SL No.	CHARACTERISTIC	SI UNITS		APPLICATION
		Unit	Abbreviation	
(1)	(2)	(3)	(4)	(5)
10.	Stitch length	Millimetre	mm	Knitted fabrics Made-up fabrics
11.	Mass per unit area	Grams per square metre	g/m ²	Fabrics
12.	Mass per unit length	Grams per metre	g/m	Fabrics
13.	Twist	Turns per centimetre	turns/cm	Yarns, ropes (as appropriate)
		Turns per metre	turns/m	
14.	Test or gauge length	Millimetre, centimetre	mm, cm	Fibres, yarns and fabric specimens (as appropriate)
15.	Breaking load	Millinewton	mN	Fibres, delicate yarns (skeins or individual)
		Newton	N	Strong yarns (individual or skeins), ropes and cordages, fabrics
16.	Breaking length	Kilometre	km	Yarns
17.	Tenacity	Millinewton per tex	mN/tex	Fibres, yarns (individual or skeins)
18.	Twist factor or twist multiplier	Turns per centimetre \times square root of tex	turns/cm $\times \sqrt{\text{tex}}$	} Yarns (as appropriate)
		Turns per metre \times square root of tex	turns/m $\times \sqrt{\text{tex}}$	
19.	Bursting strength	Newton per square centimetre	N/cm ²	Fabrics
20.	Tear strength	Millinewton	mN	Fabrics (as appropriate)
		Newton	N	
21.	Pile height	Millimetre	mm	Carpets
22.	Pile density	Mass of pile yarn in grams per square metre per millimetre pile height	g/m ² /mm pile height	Pile carpet
23.	Elastic modulus	Millinewton per tex per unit deformation	mN/tex/unit deformation	Fibres, yarns, strands

A P P E N D I X B[*Table 1, Item (vii)*]**BREAKING LOAD (WEFTWAY)****B-1. APPARATUS**

B-1.1 A constant-rate-of-traverse type breaking load testing machine with a rate-of-traverse of 300 mm/min with fair faces of 25.4×25.4 mm shall be used.

B-2. PROCEDURE

B-2.1 Set the clamps of the testing machine so that the distance between them is 5 mm. Take 10 mm length test specimen and insert it centrally in the clamps so that the weft direction of the tape is parallel to the application of load with approximately the same width of tape gripped by each clamp. Operate the machine and carry the test to rupture and record the breaking load. Similarly determine the breaking load at 4 more places.

INDIAN STANDARDS

ON

NARROW FABRICS, WEBBINGS AND BRAIDS

IS:

- 1274-1958 Cotton tubular banding to drive spindles (for cotton textile mills)
- 1718-1970 Cotton spindle tapes (*first revision*)
- 1740-1977 Flat cotton wicks (*first revision*)
- 1895-1970 Cotton tape *NEWAR* grey or dyed (*first revision*)
- 1923-1973 Cotton selvedge tape for electrical insulation purposes (*second revision*)
- 1974-1971 Cotton spindle tapes for jute textile mills (*first revision*)
- 2847-1964 Cotton selvedge tape for electric cables
- 4778-1968 Cotton laces for footwear
- 5351-1975 Woven-polyester tape for electrical purposes (*first revision*)
- 5352-1974 Glass-fibre woven tape for electrical purposes (*first revision*)
- 5354-1969 Cotton stripping tape for electrical purposes
- 5656-1970 Cotton braids for sleeveings
- 6117-1977 Tapes, cotton (*first revision*)
- 6487-1972 Cotton tape, unproofed and proofed for ammunition purposes
- 6488-1975 Cotton webbing for personal web equipment (*first revision*)
- 6672-1972 Mercerized cotton tapes for berets
- 6673-1972 Waxed cotton selvedge tape
- 6674-1972 Cotton webbing for use in packing aero-engines
- 7284-1973 Coarse cotton webbings
- 7298-1973 Cotton webbing, proofed and unproofed
- 7426-1974 Special cotton webbings
- 7427-1974 Cotton webbing for ammunition carriers and other similar purposes
- 7776-1975 Silk webbing
- 7777-1975 Cotton webbing, rolled edges
- 8302-1977 Braided tape for berets
- 8894-1978 Cotton tapes for slide fasteners